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(*Continued from page 108.*)

IV. SOME SENECIOS OF EASTERN QUEBEC AND NEWFOUNDLAND.

(Plate 144.)

Senecio resedifolius.—In 1818 Ledebour described from the Altai of Siberia a monocephalous Senecio under the name *Cineraria lyrata*.[1] The plant was subsequently collected by Bunge, Fischer, Tiling, Turczaninow, Charles Wright and others in the Altai and Baikal regions or at other points in Siberia eastward to Amur and the coast of Bering Straits. It is a well marked but highly variable plant, a single variation of which was illustrated in Reichenbach's *Iconagraphia*.[2] In 1831 Lessing gave a beautifully detailed description of one of Chamisso's plants from Bay St. Lawrence or Gulf of St. Lawrence on the Asiatic side of Bering Straits as *Senecio resedifolius*,[3] and as a synonym he cited *Cineraria lyrata* Less., Lessing's specific name being unavailable on account of the older *Senecio lyratus* L. f.

Gradually the knowledge of *Senecio resedifolius* was extended until, in 1867, Herder[4] recognized it as a wide-ranging species, extending from Bering Straits across arctic Siberia and south to the Altai, and along the coast of Alaska to "Brittisch Nord-Amerika." In 1916 its range, as understood by the monographer of the genus, Greenman,[1] was essentially the same, he citing specimens from as far south as the Aleutian and Shumagin Islands and "Mucklung River" (supposed to be in British Columbia). At the same time *Senecio Fernaldii* Greenman,[2] from a spur of the Long Range in Newfoundland, was described as a new species. The type of the latter was a single rather exceptional individual,[3] but it showed characters in the foliage and in its lack of ligules which seemed to separate it from the ordinarily radiate *S. resedifolius*. Subsequently, however, the Newfoundland plant (figs. 1^3 and 1^4) has been twice collected in quantity at the type-locality, in July, 1914 (*Fernald & St. John*, no. 10,873) and in July, 1921 (*Mackenzie & Griscom*, no. 10,483). A few individuals of these later collections are good matches for the type; but of the 47 plants of these two collections preserved in the Gray Herbarium all but these half-dozen individuals show such departures in the toothing and shape of the basal leaves, development and cutting of the cauline leaves, and development of ligules that, by those who have not seen them growing in one area of limestone shingle, and who might depend too reliantly upon the key-characters used by Greenman, "heads . . . discoid," and "Lower leaves sharply dentate," they might readily be mistaken for several species. The basal leaves may be sharply dentate, rounded-dentate or shallowly undulate, oblanceolate, rhombic, elliptic, orbicular or reniform, and at base from narrowly cuneate to cordate. The middle and upper cauline leaves likewise vary from linear- or lance-attenuate to deltoid and from entire to pinnatifid; and the heads are either discoid or radiate. *S. Fernaldii*, growing as it does upon a dry exposed limestone tableland without shelter from wind and brilliant light, is a dwarf plant with strong tendency to purple coloring in leaves and involucre, and in all these features, as well as in its disk-flowers, the individuals with crenate-dentate basal leaves seem quite inseparable from Chamisso's original material from the west side of Bering Strait of *S. resedifolius*, while others are inseparable in foliage, involucre and disk-corollas from material collected by Charles Wright on Arakamtchetchene Island in Bering Straits or by Blaisdell at Cape Nome; while taller and looser-growing individuals are almost identical with Weinmann's specimens from the Kuskokwim Valley in Alaska. The only difference I can make out is that the material from about Bering Sea usually has well developed rays; the Newfoundland plant is usually discoid, though occasionally with short ligules; but the ligules of the Chamisso material are nearly as short as in the radiate plants from Newfoundland, while *S. resedifolius*, var. *columbiensis* Gray is a lax and luxuriant shade-form separated because of its rayless heads. I am, therefore, unable to find any stable characters by which *S. Fernaldii* can be maintained as specifically distinct from *S. resedifolius*.

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[1] Ledeb. Mém. Acad. Pétersb. v. 576 (1818).

[2] Reichenb. Ic. Bot. Crit. ii. l, t. 101 (1824).

[3] Lessing, Linnaea, vi. 243 (1831). Lessing's account says clearly that the original habitat was "In sinu St. Laurentii cel. de Chamisso" and one of the original labels in Chamisso's hand, in the Gray Herbarium, is equally explicit: "Sin. St. Laurent." This, of course, is the well known Bay or Gulf of St. Lawrence on the west side of Bering Straits, where many types were collected by Chamisso. Greenman in his monograph (Ann. Mo Bot. Gard. iii. 99) erroneously cites the Chamisso material as coming from "Alaska: St. Lawrence Island, *Chamisso*."

[4] Herder, Reisen in den Süden von Ostsibirien, iii. Heft. 2: 116 (1867).

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[1] Greenman, Ann. Mo. Bot. Gard. iii. 99 (1916).

[2] Greenman, l. c. 90 (1916).

[3] "but after we had repeatedly made solemn vows to look at nothing else and were finally hastening back across the barren in order to reach the settlement before dark, an unusual appearing Senecio came riding down a mass of sliding gravel to my very feet. This was too great a temptation, so I snatched the plant as it was sliding past." —Fernald, Rhodora, xiii. 131 (1911).

During the summer of 1923, the party[1] exploring the schistose mountains centering on Mt. Logan in Matane County, Quebec, found a very handsome Senecio with large commonly solitary and radiate heads. This plant (figs. 1^1, 1^2 and 1a), which abounds in turfy chimneys and upon cliffs and talus at altitudes of 850–1150 m. on Mts. Fortin, Logan and Pembroke, and which in its well developed green leaves (basal leaves up to 3 cm. broad, cauline leaves in luxuriant plants up to 8 cm. long and 3.5 cm. broad), tall stature (often 2–3 dm.) and showy elongate ligules, did not suggest in the field the little purplish plant of the dry barrens of western Newfoundland already discussed; but at one station, the dry upper talus and cliffs at the head of Hanging Valley on Mt. Pembroke, plants clearly conspecific with the large-leaved specimens of the moister chimneys had the low stature, reduced foliage and occasionally the discoid heads of the Newfoundland plant. Altogether the plant of the Shickshock Mts. shows almost every conceivable variation, even for so protean a group as *Senecio*, and in this series collected at three closely adjacent stations all the recorded variations of *S. resedifolius* can be matched.

The variation of *S. resedifolius* which was described by Ledebour from the Altai as *Cineraria lyrata* is so much taller and has so much better-developed basal leaves than Chamisso's plant that it has been treated by DeCandolle, Herder and others as a distinct variety, var. *lyratus* (Ledeb.) DC., supposed to be confined to the Altai and Baikal region; but some of the individuals from the Shickshock Mts. are scarcely distinguishable from authentic Altai and Baikal material, except in their slightly shorter and broader rays. Others again closely match in their angulate-toothed leaves Tiling's original specimens from Ajan (on the west side of Ochotsk Sea) of var. *multicaulis* Herder; while others have the cauline leaves even more developed than in the type of var. *columbiensis*.

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[1] J. F. Collins, C. W. Dodge, M. L. Fernald, Ludlow Griscom, K. K. Mackenzie, A. S. Pease and L. B. Smith.

In the Newfoundland plant the unexpanded disk-corollas and the outsides of the lobes are deep orange, in the Shickshock plant usually orange-yellow; but in the latter region a single individual was found with both disk- and ray-flowers decidedly reddish. And, as already noted, in the plants of Newfoundland the heads are commonly discoid but sometimes radiate, while in the Shickshock area they are commonly radiate but occasionally discoid. Exactly the same variations of the heads are found in Siberia, Ledebour explicitly saying in his description: "Capitula majora v. minora, saepissime radiata nec nisi rarissime discoidea. Ligulae plerumque aureae variant flavae et licet rarissime rubicundae."[1] In brief, *Senecio resedifolius*, long supposed to be restricted to the region from Alaska across Siberia, is now known in two extremely isolated regions, the Shickshock Mountains of Gaspé and the Long Range of Newfoundland, where in its numerous modifications it not only parallels but seems to exceed the Alaskan and Siberian plant. Miss Brackett's drawings (fig. 1) show only a few of the variations in eastern America.

SENECIO PAUCIFLORUS AND S. INDECORUS.—Two of the most characteristic species of *Senecio* on the Gaspé Peninsula are strikingly different plants which, in his *Monograph of the North and Central American Species of the Genus Senecio*, are treated by Greenman[2] as a single species, *S. pauciflorus* Pursh. One of the plants, true *S. pauciflorus* (fig. 2), is in eastern Quebec confined to the alpine and subalpine chimneys and meadows of the Shickshock Mts. and to the calcareous terraces bordering the Straits of Belle Isle. North of the Straits of Belle Isle it is characteristic of the mountainous region from Cape Mugford to the northern limits of Labrador, while in western America it extends from near the Arctic Circle in Mackenzie, Yukon and Alaska to the mountains of Wyoming and the Yosemite region of California. In the field *S. pauciflorus* is at once distinguished by its thick and fleshy foliage, the few cauline leaves with blunt teeth and lobes; by its comparatively low stature (1 to rarely 5.5 dm.), few (1–6, more rarely –11) broadly campanulate heads with usually purple involucres, and disk-corollas with orange-red or deep-red lobes.

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[1] Ledebour, Fl. Ross. ii. 632 (1844–46).

[2] Greenm. Ann. Mo. Bot. Gard. iii. 91 (1916).

The other species (fig. 3) is the plant figured and described in Britton & Brown, Illustrated Flora, iii. 479, fig. 4042, as *S. discoideus*.[1] This plant should, however, be called *S. indecorus* Greene, since Hooker's *S. aureus*, δ *discoideus*, upon which *S. discoideus* rests, proves to be *S. pauciflorus*. Unlike *S. pauciflorus*, *S. indecorus* is not an arctic-alpine plant, but it occurs in the Canadian forest at low levels, from Gaspé County, Quebec to the Lake Superior region and at comparatively low altitudes from southern British Columbia to Idaho and northeastern California. In Quebec, where I have been familiar with the two species for twenty years, *S. indecorus* occurs in thickets and woodland-swamps or on talus and cool ledges of limestone; and in the field it is at once distinguished from the alpine and subalpine *S. pauciflorus* by its thin or membranaceous basal leaves sharply lacerate-pinnatifid and rather numerous cauline leaves, tall stature (up to 9 dm.), more numerous (6–40) slenderly cylindric-urceolate heads with green or merely purple-tipped involucres and yellow flowers.

In *S. indecorus* the filiform tube of the corolla is 3.6–6 mm. long, in *S. pauciflorus* only 3–4 mm.; and in the former the slender, strongly costate achenes (fig. 3d) are 2–3 mm. long, the plumper, less prominently ribbed and darker achenes of *S. pauciflorus* (fig. 2d) being 3–3.5 mm. long. When the heads are quite mature the bracts of the involucre of *S. pauciflorus* (fig. 2c) spread or become only slightly reflexed, exposing a smooth and nearly flat denuded receptacle (fig. 2b), but in *S. indecorus* the mature and narrower bracts (fig. 3c) become strictly reflexed and the convex receptacle (fig. 3b) is conspicuously alveolate, the walls of the pits very thin and jagged or almost fimbriate.

Although the heads of *S. indecorus* are normally discoid, they, like those of *S. pauciflorus*, are sometimes radiate and plants of both forms sometimes occur in the same colonies.[2] These radiate individuals which occur in Quebec side-by-side with the commoner discoid form of *S. indecorus* are quite inseparable from the type from Idaho and other authentic specimens from British Columbia of *S. Burkei* Greenman, Ott. Nat. xxv. 114 (1911) and Ann. Mo. Bot. Gard. ii. 626, t. 20, fig. 1 (1915); and it is significant that many of the British Columbian localities for discoid *S. indecorus* are identical with those cited by Greenman for *S. Burkei*.

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[1] *S. discoideus* Hook. ex Torr. & Gray, Fl. ii. 442 (1843) is usually cited as *S. discoideus* (Hook.) Britton, l. c. (1898), but the combination was actually published and ascribed to Hooker in 1843.

[2] The character, "discoid" or "radiate," is very unsatisfactory in *Senecio*. In the species of northeastern America the ordinarily radiate *S. aureus* L., *S. Robbinsii* Oakes, *S. pauperculus* Michx., *S. obovatus* Muhl. and *S. resedifolius* Less., in addition to those above discussed, are occasionally discoid.

In the development of its foliage *S. indecorus* varies as much as *S. pauciflorus*, *S. aureus*, *S. pauperculus* and *S. resedifolius*, the plants showing quick responses to degrees of moisture, exposure and soil-fertility. In different habitats of the same region may be collected specimens with greatly reduced cauline leaves and others with them remarkably dilated. Plants of the latter extreme from Rimouski County, Quebec, are quite inseparable from *S. idahoensis* Rydberg, Bull. Torr. Bot. Cl. xxvii. 183, t. 6, fig. 5 (1900), which Greenman recognizes as a species distinct from *S. pauciflorus*. *S. idahoensis* has all the technical characters of *S. indecorus*,—membranaceous basal leaves, lacerate-pinnatifid cauline ones, tall stature, numerous heads, slender green involucre, characteristic corolla and achene, and the alveolate receptacle—and the type-number is, except for lack of ligules, a good match for the type of *S. Burkei*. None of the characters of disk-corolla, achene and receptacle are mentioned by those who maintain the distinctness of *S. idahoensis;* but the plant is considered remarkable in having the "stem branched from near the base" and "large broad stem-leaves" (Greenman, Ann. Mo. Bot. Gard. iii. 96). The foliage of the type-number, *Sandberg, MacDougal & Heller*, no. 803, is, as already implied, closely matched by that of luxuriant individuals from eastern Quebec and by the type of *S. Burkei;* but, as shown by the sheet of the type-number of *S. idahoensis* in the Gray Herbarium (one of the sheets cited by Greenman), the basal branching of this Idaho specimen is due to the fact that the primary stem had been broken or bitten off, causing the development of few-headed basal branches.

The type of *Senecio discoideus* is Hooker's *S. aureus*, δ *discoideus* from Fort Franklin in Mackenzie. An excellent photograph of Hooker's type is preserved at the Field Museum of Natural History and I am under obligation to Messrs. D. C. Davies and J. Francis Macbride for an opportunity to examine it. It is certainly not the plant (*S. indecorus*) which has been passing as *S. discoideus* in eastern

America. In the lobing of its leaves the type of *S. discoideus* is like *S. pauciflorus*, but it has broadly deltoid instead of oblong cauline leaves and much more numerous heads than in the typical *S. pauciflorus* of Labrador and Quebec. Material from British Columbia closely approaches the Fort Franklin plant, however, and *S. discoideus* is best treated as an extreme development of *S. pauciflorus*.

Greene's description of *S. indecorus* at once suggests the plant which has been passing as *S. discoideus* and a beautiful photograph of the type which has been generously furnished me by Professor George W. Albertson of the University of Notre Dame settles beyond question this identity.

Briefly summarized the main characters and the bibliography of *S. pauciflorus* and *S. indecorus* are stated below, and a few characteristic specimens are cited.

S. PAUCIFLORUS Pursh, Fl. Am. Sept. ii. 529 (1814); Greenman, Ann. Mo. Bot. Gard. iii. 91 (1916), in part. *S. aureus*, δ *discoideus* Hook. Fl. Bor. Am. i. 333 (1834). *S. discoideus* Hook. ex Torr. & Gray, Fl. N. A. ii. 442 (1843), as to type but not description. *S. aureus*, γ *borealis* Torr. & Gr. Fl. N. A. l. c. (1843), in part. *S. Lemberti* Greene, Pittonia, iii. 89 (1896). *S. aureus pauciflorus* (Pursh) Britton in Britton & Brown, Ill. Fl. iii. 480 (1898).—Stems rather stout, 1–5.5 dm. high: leaves thick and fleshy; the basal long-petioled, elliptic to reniform, cuneate to cordate at base, coarsely dentate; the median and upper sessile, 2–5 below the inflorescence, lanceolate, oblong or oblanceolate, with mostly obtuse lobes and coarse teeth: heads 1–6, rarely –11, broadly campanulate, usually discoid; involucres usually purple; the blunt to acute bracts 1–2 mm. broad: corollas with filiform tube 3–4 mm. long; the lobes orange-red to deep-red: achenes dark red-brown, plump, 3–3.5 mm. long: mature involucre rotate or oosely reflexed; denuded receptacle smooth and nearly flat.—Calcareous meadows, alpine slopes and wet rocks, northern Labrador to Matane County, Quebec; Mackenzie, Yukon and Alaska to Wyoming and California. The following are in the Gray Herbarium. LABRADOR: hills back of Okkak, *Moravian Brothers*, August, 1911, *F. C. Hinckley;* Hebron, *Moravian Brothers;* Rama, July, 1894, *J. D. Sornborger*, August, 20–24, 1897, *Sornborger*, no. 67; Mugford, August 14, 1900, *Delabarre;* barrens, Forteau, July 30, 1910, *Fernald & Wiegand*, no. 4172; wet mossy spots, limestone and calcareous sandstone terraces, Blanc Sablon, August 2, 1910, *Fernald & Wiegand*, no. 4173. QUEBEC: shore of Seal Lake, Ungava, August 3, 1896, *Spreadborough*, no. 14,387 in part; little swales near summit of limy ridge, Pointe Jones, Brest, Saguenay Co., July 29, 1915, *St. John*, no. 90,779; alpine and subalpine meadows and calcareous walls, altitude 1000–1200 m., Tabletop Mts., Gaspé Co., many collections in August of

1906 and 1923, *Fernald & Collins*, nos. 261, 263, *Fernald, Dodge & Smith*, nos. 26,109, 26,110; wet hornblende-schist at base of Big Chimney, north slope of Mt. Mattaouisse (called on label "Mt. Logan"), Matane Co., July 22, 1922, *Fernald & Pease*, no. 25,341; schistose talus and wet shelves at base (altitude 400–600 m.) of Big Chimney, Mt. Mattaouisse, July 10, 1923, *Dodge, Griscom & Pease*, no. 26,106; moist rocks and turfy chimneys (alt. about 800–1050 m.), Pease Basin, between Mts. Logan and Pembroke, Matane Co., July 13, 1923, *Pease & Smith*, no. 26,107; moist bushy talus and mouths of chimneys at about 900–1125 m. alt., Hanging Valley, Mt. Pembroke, July 16, 1923, *Griscom & Pease*, no. 26,108, August 24, 1923, *Fernald & Smith*, no. 26,111. MACKENZIE: Fort Franklin, *Richardson* (tracing from photograph of *S. aureus* δ *discoideus* Hook.). ALBERTA: Flatts, junction of North Fork and West Branch of Saskatchewan, June 21, 1908, *S. Brown*, no. 1008; Malique Lake, July 8 and 18, 1908, *Brown*, nos. 1173, 1247; Blind Valley and Lakes, alt. 7000–8000 ft., July 6, 1906, *Brown*, no. 414. BRITISH COLUMBIA: below Pipestone summit, July 6, 1904, *J. Macoun*, no. 65,018; upper Spillamacheen Valley, alt 6500 ft., August 3, 1904, *C. H. Shaw*, no. 440; Cornwall Hills, July 28,—*J. McEvoy*, no. 5100; Alberni, Vancouver Island, June 27, 1907, *Rosendahl*, no. 1971. WYOMING: small willows, Middle Ten Sleep Creek, Big Horn Co., August 1, 1901, *Goodding*, no. 465; Little Goose Cañon, Sheridan Co., July 1, 1901, *A. Nelson*, no. 2383. IDAHO: Grand Saline (Salt River?), *Burke*. CALIFORNIA: Yosemite region, 1893, *J. B. Lembert* (*S. Lemberti* Greene); Soda Springs, Tuolumne Co., July, 1894, *Lembert* (distributed by Congdon as C 171).

S. INDECORUS Greene, Fl. Francisc. 470 (1897). *S. discoideus* Hook. ex. Torr. & Gr. Fl. N. A. ii. 442 (1843) as to plant described; Britton in Britton & Brown, Ill. Fl. iii. 479, fig. 4042; not *S. aureus* δ *discoideus* Hook. Fl. Bor.-Am. i. 333 (1834). *S. idahoensis* Rydb. Bull. Torr. Bot. Cl. xxvii. 183, t. 6, fig. 5 (1900); Greenman, Monogr. Senecio, I. Teil, 24 (1901), in Engler, Bot. Jahrb. xxxii. 20 (1902), Ann. Mo. Bot. Gard. iii. 96 (1916). *S. Burkei* Greenman, Ott. Nat. xxv. 114 (1911), Ann. Mo. Bot. Gard. ii. 626, t. 20, fig. i. (1915), ibid, iii. 136 (1916).—Slender, 2–9 dm. high: leaves membranaceous; the basal slender-petioled, oblong, elliptic or ovate, cuneate to subcordate at base, sharply or often incisely toothed or sometimes pinnatifid; the middle and upper usually sessile, 4–11 below the inflorescence, oblong, lanceolate or oblanceolate, incisely and variously cut into sharp teeth or lobes; the uppermost leaves greatly reduced or obsolete; heads 6–40, slenderly cylindric-urceolate (when fresh), discoid or radiate: involucres usually green or merely with purple tips: the acute bracts 0.5–1 mm. broad: filiform tube of corolla 3.6–6 mm. long; lobes yellow: achenes drab or gray-brown, slender, strongly costate, 2–3 mm. long: mature involucre strictly reflexed: denuded receptacle convex, conspicuously alveolate; the walls of the pits very thin and jagged or almost fimbriate.—Rich thickets, swales and calcareous rock, Gaspé Co., Quebec to the Lake Superior Region; British Columbia to Idaho and northern California. The following are in the Gray Herbarium. QUEBEC: sandy alluvium of Rivière Ste. Anne des Monts, Gaspé Co., August 3–17, 1905, *Collins & Fernald;* clearings and bushy swales along Rivière Ste. Anne des Monts, July 22, 1923, *Fernald, Griscom, Mackenzie & Smith,* no. 26,095; wet calcareous headland by the River St. Lawrence, Grosses Roches, Matane Co., July 17, 1922, *Fernald & Pease,* no. 25,340; openings in Arbor Vitae swamps, Carleton, Bonaventure Co., July 24 and 27, 1904, *Collins, Fernald & Pease;* edge of Arbor Vitae swamp, July 18–21, 1905, *Williams, Collins & Fernald;* dry spruce woods at base of limestone-conglomerate cliffs, Bic, Rimouski Co., July 16, 1904, *Collins & Fernald;* meadows and swamps in slaty region south and east of Bic, July 17, 1907, *Fernald & Collins,* no. 1202 (some heads radiate); dry limestone-conglomerate ledges, south of Bic, July 28, 1907, *Fernald & Collins,* no. 1203; pastures, Rivière du Loup, Temiscouata Co., July, 1913, *Victorin,* no. 40; Roberval, Lake St. John, July 15, 1892, *G. G. Kennedy;* sur les calcaires paléozoiques de l'Ouiatchouan inférieur, Val-Jalbert, Lake St. John, July 22, 1921, *Victorin,* no. 15,436; Spirit Lake (Abitibi), Pontiac Co., July 9, 1918, *Victorin,* no. 8517. MICHIGAN: Champion, July, 1889, *E. J. Hill;* Keweenaw Peninsula, 1863, *Robbins:* Keweenaw Co., July, 1890, *Farwell,* no. 776. BRITISH COLUMBIA: Kicking Horse Valley, alt. 4000 ft., July 15, 1906, *S. Brown,* no. 487a; river-margins, Silver City, August 7, 1885, *J. Macoun;* Griffin Lake, July 6, 1889, *J. Macoun;* Carbonate, altitude 2700 ft., July 7, 1904, *Heacock,* no. 185; Wapta Lake, August 4, 1904, *J. Macoun,* nos. 65,015, 65,020; Skagit Valley, altitude 2500–3000 ft., various dates in July and August, 1905, *J. M. Macoun,* nos. 69,358–65,360; Chilliwack Valley, altitude 3000–4500 ft., various dates, 1901, *J. M. Macoun,* nos. 26,682–26,685; Sophie Mt., altitude 5500 ft., July 17 and 20, 1902, *J. M. Macoun,* nos. 64,990, 64,991; Creston, Kootenay, June 22, 1914, *J. K. Henry,* no. 4; gravel-bed of mountain-stream, Armstrong, July 4,—, *E. Wilson,* no. 247. IDAHO: meadows at Granite Station, Kootenai Co., July 30, 1922, *Sandberg, MacDougal & Heller,* no. 803 (type-number of *S. idahoensis* Rydb.); Forks of St. Mary's River, altitude 1100 m., July 3, 1895, *Leiberg,* no. 1158; Grand Saline (? Salt River, tributary to the Snake), August 16, ——, *J. Burke* (type of *S. Burkei*). WASHINGTON: Big Meadows, Stevens or Spokane Co., August 6, 1902, *Kreager,* no. 428; damp forest, Newman Lake, July 9, 1916, *Suksdorf,* no. 8797; Mt. Constitution, Orcas I., San Juan Islands, August, 1892, *Henderson,* no. 2312, June 25–August 1, 1917, *Zeller,* no. 1252. CALIFORNIA: wet meadows, Pine Creek, Lassen Co., July 9, 1894, *Baker & Nutting* (photograph of TYPE of *S. indecorus*).

Most of the eastern specimens have been distributed as *S. discoideus;* the western as *S. pauciflorus, S. Burkei* and *S. idahoensis.*

EXPLANATION OF PLATE 144.

Fig. 1^1, *Senecio resedifolius* × 1, from Mt. Pembroke, Matane Co., Quebec, *Fernald & Smith*, no. 26,103; 1^2, from Mt. Fortin, Matane Co., Quebec, *Fernald & Smith*, no. 26, 101; 1^3 and 1^4, from Table Mt., Port à Port Bay, Newfoundland (*S. Fernaldii*), *Fernald & St. John*, no. 10,873; 1a, young plant × 1 from Mt. Fortin, Quebec, *Fernald, Griscom & Mackenzie*, no. 26, 099; 1b, denuded receptacle × 4. Fig. 2, *S. pauciflorus* × 1; 2b, denuded receptacle × 4; 2c, mature involucre × 1; 2d, achene × 4. Fig. 3, upper half of small plant of *S. indecorus* × 1; 3b, denuded receptacle × 4; 3c, mature involucres × 1; 3d, achene × 4.

V. NEW OR RECENTLY RESTUDIED PLANTS OF EASTERN AMERICA.

CAREX HOSTIANA DC., var. **laurentiana** (Fernald & Wiegand) Fernald & Wiegand, n. comb. *C. fulvescens* Mackenzie, Bull. Torr. Bot. Cl. xxxvii. 239 (1910). *C. Hornschuchiana*, var. *laurentiana* Fernald & Wiegand, RHODORA, xiii. 130 (1911).

C. Hostiana DC. Cat. Pl. Hort. Bot. Monsp. 88 (1813) was well described and the plate of *C. fulva* Host, not Goodenough, was cited. Although Kükenthal retains for the species the name *C. Hornschuchiana* Hoppe (1824) he definitely cites the perfectly described *C. Hostiana* (as *C. Hosteana*) as a synonym.

We have again studied the plant of Newfoundland and Anticosti and can find no characters not shown by the European *C. Hostiana*, merely a tendency to slightly larger size of the parts; and several European specimens so closely approach var. *laurentiana* that it might be urged with good reason that the variety is scarcely worthy of separation.

SALIX BEBBIANA Sargent, var. **luxurians** (Fernald), n. comb. *S. rostrata*, var. *luxurians* Fernald, RHODORA, ix. 223 (1907). *S. Bebbiana*, forma *luxurians* (Fernald) Schneider, Journ. Arn. Arb. iii. 75 (1921).

Schneider shows[1] that *Salix rostrata* Thuill. (1797) is not a perfect synonym of *S. repens* L. but that it is identified with two generally recognized varieties of that species and by those who would treat either of these variations as species the name *S. rostrata* Thuill. would have to be used. Under these circumstances the name *S. rostrata* Richardson (1823) for the characteristic American species must give way to *S. Bebbiana* Sargent (1896). Schneider considers var. *luxurians* as "nothing but a forma luxurians," which "should be looked for in other localities of the type." In the vast accumulation of American

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[1] Schneider, Journ. Arn. Arb. ii. 68 (1920).

Salix which Schneider studied, however, he saw var. *luxurians* only from the "banks of the St. Lawrence from Rimouski Co. to Gaspé Co.," Quebec. There it is the characteristic extreme of *S. Bebbiana* and on account of its very long capsules (9–12 mm.) and long pedicels (5–8.5 mm.), its plane rather than rugose leaves and its great stature it might almost be considered a species. In *S. Bebbiana* (typical) and *S. Bebbiana*, var. *perrostrata* (Rydb.) Schneider, the mature capsules are usually 5–8 mm. long though in very exceptional specimens they reach 1 cm. and the mature pedicels range from 2–6 mm. in length.

S. BEBBIANA var. **capreifolia** (Fernald), n. comb. *S. rostrata*, var. *capreifolia* Fernald, RHODORA, xvi. 177 (1914).

SALIX **hebecarpa** (Fernald), n. comb. *S. fuscescens*, var. *hebecarpa* Fernald, RHODORA ix. 224 (1907).

When *S. hebecarpa* was originally published it was taken for an extreme of the Alaskan *S. fuscescens* Anderss. with pubescent capsules and the shrub growing with it but having the capsules glabrous (though the pedicels pubescent) was identified with *S. fuscescens*. Collections made on Mt. Albert in July, 1923 by Messrs. Griscom, Mackenzie, Smith and myself at the type station for *S. fuscescens*, var. *hebecarpa* show that the pubescence of the fruit is by no means constant but in all other characters the Mt. Albert material forms a consistent series; and a second sheet of true Alaskan *S. fuscescens* which has recently come to hand shows that it and the Mt. Albert shrub have quite different leaf-venation, and that the Alaskan shrub has darker scales and smaller capsules. *S. hebecarpa* stands between *S. fuscescens* and *S. pedicellaris* Pursh. From the latter it is separated by its more obovate leaves, the more pubescent and darker scales of the ament, the much shorter, thicker and pubescent pedicels (about equaling to twice as long as the scales), the long nectary and the definite style. The following specimens, all from alpine bogs on Mt. Albert, Gaspé County, Quebec, are representative. The form with glabrous or glabrescent capsule is marked "gl."

August 8–15, 1905, *Fernald & Collins* (gl); July 21, 1906, *Fernald & Collins*, no. 206 (gl), no. 207 (TYPE in Gray Herb.); July 24, 1923, *Fernald, Griscom, Mackenzie & Smith*, no. 25,686 (gl).

OPLOPANAX HORRIDUM (Sm.) Miquel. The Devil's Club is known in our eastern manuals as *Fatsia horrida* (Sm.) B. & H. or as *Echinopanax horridum* (Sm.) Decaisne & Planchon. It seems to be a monotypic genus (though the Japanese plant is sometimes separated) clearly distinguished from *Fatsia*, and by the International Rules of Botanical Nomenclature its name should be *Oplopanax horridum* (Sm.) Miquel. *Echinopanax* Decaisne & Planchon, Rev. Hort. Sér. 4, iii. 105 (1854) was started as a genus merely by the statement, "Un autre type très remarquable (*Echinopanax* Nob.) est fourni par le *Panax horridum.*" Absolutely no differential character was given by which any one else could tell on what points *Echinopanax* rested as a genus; that highly important detail being left for others to struggle with, they, if successful, giving the credit for the solution to the authors who had not taken sufficient pains themselves to point out the differential characters. The International Rules wisely exclude these names, the authors of which, to use the slang of the day, "pass the buck," stating (Art. 38) that "The mere indication of species as belonging to a new genus or of genera as belonging to a higher group, does not allow us to accept the genus or group in question as characterized and effectively published." The American Rules, however, accept such irresponsible publication and by that code *Echinopanax* is a properly published genus. So far as a prolonged search has revealed, the first satisfactorily published generic name for the Devil's Club is *Oplopanax* Miquel, Ann. Mus. Bot. Lugd.-Batav. i. 16 (1863), which was based upon Torrey & Gray's *Panax* § *Oplopanax*, a section set off by them with a real characterization.

Nelson & Macbride, Bot. Gaz. lxi. 45 (1916), have revived the name *Ricinophyllum* and have made the combination *R. horridum* (Sm.) Nelson & Macbr.; but a moment's examination of the original publication would have shown that *Ricinophyllum* was merely indicated in synonymy as an herbarium-name found on an old sheet of *Panax horridum* Sm. The name *Ricinophyllum*, therefore, has no nomenclatorial status.

HACKELIA DEFLEXA (Willd.) Opiz, var. **americana** (Gray) Fernald & Johnston, n. comb. *Echinospermum deflexum*, var. *americanum* Gray, Proc. Am. Acad. xvii. 224 (1882). *Lappula deflexa*, var. *americana* (Gray) Greene, Pittonia, ii. 183 (1891). *L. americana* Rydb. Bull. Torr. Bot. Cl. xxiv. 294 (1897).

When the genus *Hackelia* was recently taken up[1] the American plant was merged with the European since the character relied upon by Gray in separating it, namely, the presence of a few prickles on the back of the fruit, was found to be very inconstant. Recent examination of the American material, however, shows that it differs from the European in having the leaves elliptic-lanceolate or narrowly ovate and acuminate, the leaves of the European type being spatulate-oblanceolate. In the latter plant the back of the fruit is deltoid-ovate; in the American plant more definitely deltoid. Typical *L. deflexa* extends eastward into China while var. *americana* is present in Amur (*Maximowicz*).

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[1] Johnston, Contrib. Gray Herb. n. s. No. lxviii. 43–48 (1923).

AGOSERIS **gaspensis**, spec. nov., perennis; foliis lineari-lanceolatis flaccidis integris vel remote pinnato-incisis glabris basi ciliatis; scapo deinde folia superante apice villoso; involucri bracteis lanceolatis attenuatis 1.5–2 cm. longis, exterioribus viridibus apice recurvatis basi valde villoso-ciliatis, ciliis 1–2 mm. longis, bracteis interioribus scariosis valde purpureo-maculatis; floribus aeneis; pappo albo deinde 1.2–1.5 cm. longo, setis minute serrulatis: achenio lineari-fusiformi 7–9 mm. longo glabro, rostro 5–7 mm. longo firmo vix filiformi glabro.—Tabletop Mountains, Gaspé County, QUEBEC: dry stony subalpine meadows, at 1100–1200 m. altitude, east of Lac Perrée, August 14, 1923, *M. L. Fernald, C. W. Dodge, & L. B. Smith*, no. 26,119; alpine and subalpine meadows and brooksides, northern and northeastern slopes (alt. 950–1300 m.) of Mt. McNab, August 7, 1923, *Fernald, Dodge & Smith*, no. 26,120 (TYPE in Gray Herb.); subalpine meadows on southern slope (alt. about 1200 m.) of Mt. Au Clair, August 10, 1923, *Fernald & Smith*, no. 26,121.

Strongly simulating *Agoseris gracilens* (Gray) Kuntze of the region from southern Alberta and British Columbia to Wyoming, Utah, Nevada and northern California. That species, however, as shown by Gray's original material of *Troximon gracilens*, has the body of the achene only 5–7.5 mm. long and hispid at summit (in *A. gaspensis* 7–9 mm. long and glabrous); the delicate filiform beak 6–8 mm. long (the stouter and firm beak of *A. gaspensis* 5–7 mm. long); and the mature pappus only 8–10 mm. long (in *A. gaspensis* 1.2–1.5 cm. long). Furthermore, in *A. gracilens* the disk at the tip of the beak is about 0.5 mm. in diameter, in *A. gaspensis* nearly twice as broad.

A. gaspensis is of peculiar interest because it is the first member of this predominantly cordilleran genus to be found in the Shickshock Mountains, a region in which the cordilleran relationship is very pronounced and already well known through such plants as *Polystichum mohrioides*, var. *scopulinum* (D. C. Eaton) Fernald (discussed on p. 89), *Salix brachycarpa* Nutt., *Dryas Drummondii* Richardson, *Lonicera involucrata* (Richardson) Banks, and hundreds of others.

The genus which was long called in America and which is maintained by Dalla-Torre & Harms as *Troximon* Nutt. should be known as *Agoseris* Raf. The question was cleared by Greene in 1891,[1] but more recently Hall,[2] who has been followed by other western botanists has urged the retention of *Troximon* in the following words.

"The reinstatement of the genus Agoseris Raf. (1817) has been proposed for those species of Troximon in which the achenes are beaked. But the two groups are best received into one genus, being connected by the thick-beaked *T. glaucum*. Troximon was first used as a generic name by Gaertner (1791) but since his genus is not sustained, we may properly write Troximon Nutt. (1813) as the name of the present group."

In Hall's argument several fundamental facts seem to have been overlooked. In 1791 Gaertner[3] published *Troximon* as a genus based upon three Linnean species of *Tragopogon*, *Trag. Dandelion*, *T. virginicum* and *T. lanatum*. The three species were, according to *Index Kewensis,* formally named *Troximon Dandelion*, *T. virginicum* and *T. lanatum* by F. W. Schmidt in 1795 and they were certainly described under these binomials by Persoon in 1807. The first two are species of *Krigia* Schreber (1791), belonging to the subgenus *Cynthia* (D. Don) Gray, which is often maintained as a distinct genus *Cynthia* D. Don (1829).[4] The third species, *Trox. lanatum*, is generally referred to *Scorzonera* L. (1753). By whichever principle we reason, whether we typify *Troximon* Gaertn. by its first species, by the greater number of species or by the exclusion from it of the species (*T. lanatum*) which belongs to the earlier-published *Scorzonera*, we arrive at the same conclusion, that

TROXIMON Gaertn. (1791) = CYNTHIA D. Don (1829) and should be used by those who maintain *Cynthia* as generically distinct from *Krigia* Schreb. (1791). Whether *Krigia* (1791) has priority over *Troximon* (1791) I have as yet been unable to determine.

Hall, apparently considering Troximon Gaertner as a "genus . . . not sustained" would retain "Troximon Nutt. (1813)." But what was *Troximon* Nutt. (1813)? The reference ordinarily given is to Nutt. in Fraser's Cat. nos. 83 and 84. Fraser's *Catalogue* was merely a list of names and the complete treatment under nos. 83 and 84 was as follows:

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[1] Greene, Pittonia, ii. 176 (1891).

[2] Hall, Univ. Cal. Pub. Bot. iii. No. 1: 276 (1907).

[3] Gaertn. Fruct. ii. 360 (1791).

[4] D. Don, Edinb. New Phil. Journ. vi. 309 (1829).

"83* Troximon ciliatum. ‡ M.
84* ————glaucum. ‡ M."

This certainly does not constitute satisfactory publication of a genus. The next reference commonly given is to Pursh, Fl. Am. Sept. ii. 505 (1814). But Pursh gave absolutely no generic diagnosis and ascribed the genus without question to Gaertner and to Persoon. That Pursh had no thought of setting up a new genus is perfectly evident from the fact that he has two species, *T. glaucum* which is an Agoseris, and *T. virginicum* which was one of the original species of *Troximon* Gaertn. Nor did Nuttall in his Genera, ii. 127 (1818) indicate any intent to set off a new genus *Troximon* as distinct from Gaertner's genus; for he ascribed *Troximon* directly to Gaertner and he so far accepted Gaertner's definition as to include the oriental *T. lanatum* which belongs to the genus *Scorzonera*.

In 1817 Rafinesque properly published *Agoseris*[1] and again, in 1819,[2] he gave a good characterization of the genus. There is no question, then, that AGOSERIS Raf. (1817) is the correct name for the genus which still passes erroneously as *Troximon* "Nutt.," and that TROXIMON Gaertn. (1791) is the correct name for *Cynthia* D. Don (1829).

NOTES ON SOME RHODE ISLAND AND SOUTHEASTERN MASSACHUSETTS PLANTS.

S. N. F. SANFORD.

GLAUCIUM FLAVUM Crantz. (*Glaucium luteum* Scop.) The Great-horned Sea-poppy, an introduced plant of somewhat rare occurrence and brief residence, is appropriately named because its mature pods are nearly a foot long and its usual habitat is on sea cliffs or in the beach shingle along salt rivers. Even when found in other waste places the locality is generally near the coast.

Early botanists reported[3] stations on Conanicut Id., Prudence Id., and Portsmouth, R. I., and the writer has collected the plant on the ocean bluffs at Seaconnet Pt., Little Compton, R. I., at Mt.

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[1] Raf. Fl. Ludov. 58 (1817).

[2] Raf. Journ. de Phys. lxxxix. 100 (1819).

[3] Proc. Newport (R. I.) Nat. Hist. Soc., 1885–6, p. 5, 13.